Collaborative Impression Formation and Recall of Impression-relevant Information

Margarida Garrido (margarida.garrido@iscte.pt)
Department of Social and Organizational Psychology, ISCTE,
Av. das Forças Armadas 1649-026, Lisboa, Portugal

Leonel Garcia-Marques (garcia_marques@sapo.pt)
Faculdade de Psicologia e Ciências da Educação, University of Lisbon
Alameda da Universidade, 1649-013, Lisboa, Portugal

David Hamilton (hamilton@psych.ucsb.edu)
Department of Psychology, University of California, Santa Barbara
Santa Barbara, CA 93106-9660

Mário Ferreira (mabf@fpce.ul.pt)
Faculdade de Psicologia e Ciências da Educação, University of Lisbon
Alameda da Universidade, 1649-013, Lisboa, Portugal

Abstract

The present research examines how the match between encoding and recall contexts influences recall performance. Memory research has shown that recall performance can be impaired when a subset of the studied stimuli is presented at recall (the part-set cuing effect) or when the recall process is carried out in a collaborative way (collaborative inhibition effect). In 4 experiments we manipulated the degree of match between item organization at encoding and at retrieval, either by manipulating: the organization of part-set cues (exp. 1); the organization of the information provided at encoding to participants of the same collaborative recall sessions (exp. 2); or the nature of the encoding conditions (collaborative vs. non-collaborative; exp. 3 and 4). Results stress the parallel between both effects showing that mismatching encoding organization cues provided at test (by the experimenter or by other collaborative group members), impair recall considerably when compared to no cues or matching encoding organization cues. We present a theoretical account for the reported result pattern - the principle of associative recapitulation.

Introduction

Memory research in Social Cognition has emphasized encoding at the expenses of retrieval processes (Garrido & Garcia-Marques, 2003). Only recently has retrieval processes became an explicit object of interest and study. New research trends in Cognitive Psychology reformulate classical views of memory (e.g., exemplar, parallel distributed processing and dual process models) that account for the diversified nature of recall processes and experiences. Furthermore, some approaches include the consideration of memory processes as cognitively distributed processes questioning the classical view of memory as a process carried out exclusively by isolated individuals (Weldon & Bellinger, 1997). Regardless the emphasis given to one or the other stage of the memory process, one of the most interesting issues in the scope of memory research is precisely the relation between encoding and retrieval processes, and how retrieval depends on encoding contexts. This relation as long been recognized by Tulving and Thompson (1973) who claimed that retrieval depends on how information was encoded (*encoding specificity principle*) and by others (e.g., Morris, Bransford, & Franks, 1977) that suggested that memory performance is enhanced when the test entails similar processing as encoding (*transfer of appropriate processing*).

The main goal of the present paper is to study memory encoding and retrieval processes in two different paradigms (part-set cuing and collaborative recall) where the encoding and retrieval context mismatch is particularly evident. Further, we will present a specific principle – the Principle of Associative Recapitulation (PAR) – which refers to the degree of match between the associative organization of information presented at encoding and available at retrieval, and we will show how it accounts for the results of the four experiments here reported.

Part-set cuing and collaborative inhibition

Several studies have shown that when participants are presented at test with a subset of studied items, the recall of non-cued items decreases: the *part-set cuing effect* (e.g., Slamecka, 1968; Anderson & Bjork, 1994). Likewise, the recall performance of collaborative groups (composed of interacting individuals) is poorer relative to nominal groups (composed of an equal number of participants tested individually): the *collaborative inhibition effect* (e.g., Weldon & Bellinger, 1997; Basden & Basden, 1995). Both effects have been recently extended to person memory (Garcia-Marques, Hamilton, & Maddox, 2002).

Theoretical accounts

Inhibition and occlusion based accounts Part-set cuing effects have stimulated a large set of explanations. One of

the most important accounts put forward for part-set cuing highlights trace competition. Items that share some similar retrieval cues compete for retrieval because they cannot be simultaneously retrieved (Anderson & Spellman, 1995). According to different (but not necessarily opposing) views, the conjunction of part-set cues and response competition can cause either the occlusion of non-retrieved items (Rundus, 1973), or their inhibition (Anderson & Bjork, 1994).

Shortcomings In the present experiments we extend the part-set cuing paradigm to an impression formation task. This extension is theoretically important because part-set cuing effects are typically obtained under intentional learning conditions with very simple stimulus materials. Impression formation, by contrast, is an incidental learning task that involves richer materials (i.e., traits and behavior descriptor sentences). Integrative processing, however, may represent a boundary condition to part-set cuing effects. In fact, impression formation processes lead to the development of highly integrated person representations that typically involve high levels of spontaneous inter-item associations (e.g., Asch, 1946). In densely interconnected representations, part-set cues and non-cued items are strongly associated, and thus non-cued items suffer less from occlusion and/or are harder to inhibit (Anderson & McCulloch, 1999). If that is the case, than part-set cuing effects might fail to emerge in social cognition settings (Dunn & Spellman, 2003) and as such inhibition / occlusion cannot account for the extension of part-set cuing effects to person memory.

Disruption of optimal retrieval strategies Another account for part-set cuing effects also applies to collaborative inhibition: the disruption of optimal idiosyncratic recall strategies (Basden & Basden, 1995; Sloman, Bower, & Rohrer, 1995). According to this account, both part-set cues and collaborative recall disrupt the use of recall strategies developed by participants at encoding. According to Basden and colleagues (Basden & Basden, 1995; Basden, Basden, Bryner, & Thomas, 1997; for a review, see Nickerson, 1984), when participants are asked to recall a set of studied items, they form a recall plan that conforms to the way they have structured the items in memory. When provided with part of the learning set as cues (by the experimenter or by their fellow collaborative group members), however, participants deviate from their initial plan and use whatever recall strategy is suggested by the cues. The more this new recall plan deviates from the initial encoding organization, the worse recall performance is. However, if part-set cuing effects are due to the disruption of an optimal retrieval strategy, they should emerge even in densely interconnected representations because, if anything, sophisticated retrieval strategies are more likely to be developed in the case of such complex representations.

Shortcomings Although the account provided by Basden and colleagues can potentially explain part-set cuing effects, idiosyncratic strategy explanations assume a deliberate process at encoding that does not match with incidental learning contexts as impression formation ones (see Sloman et al., 1991). Peynircioğlu (1989, 1995) provides some specific evidence against this strategy disruption account of the part-set cuing effect, reporting inhibitory effects of the cues in incidental memory tasks, when subjects have no reason to expect a memory test during the study phase.

Our Proposal

It seems that the "recall strategy disruption" account could be easily amended simply by omitting the requirement of a preplanned retrieval strategy (i.e., a retrieval plan generated at encoding). Thus a modified "recall disruption" hypothesis would propose that whenever retrieval fails to recapitulate the associations formed at encoding, recall performance is impaired. We will dub this modified recall disruptions hypothesis as principle of associative recapitulation (PAR) [1]

The present studies are directly targeted at providing a differential test to the different explanations of part-set cuing and collaborative inhibition effects, and our associative recapitulation hypothesis may nevertheless contribute to this ongoing debate. Given the assumption that most of our recall experiences are socially framed it is easy to understand that social interaction frequently provides retrieval cues that often do not recapitulate encoding idiosyncratic associative organization. Both part-set cuing and the collaborative recall paradigms provide good examples of such circumstances.

Experiment 1

To test the PAR we examined how the match between encoding and retrieval contexts affects recall performance by manipulating the organization of information at encoding and available at retrieval in a *part-set cuing paradigm*. After inducing different organizations of information at encoding, we provided at test, as retrieval cues, information organized in a way that either recapitulated the encoding organization or presented an alternative organization.

We expected that a) presenting retrieval cues would inhibit free recall of non-cued behaviors (part-set cuing inhibition replication); b) when the organization of these cues does not recapitulate the encoding organization the magnitude of the impairment would be higher than when it does. The presentation of part-set cues will induce a retrieval plan that deviates from the initial encoding organization, preventing retrieval search to follow the inter-item association established at encoding, and thus impairing recall. Further, when these cues intentionally mismatch the initial encoding organization the magnitude of this impairment will increase.

[1] Our "associative recapitulation" hypothesis is similar to the "principle of incongruency" of Sloman et al., (1991). We prefer our hypothesis on the grounds that a) the introduction of a new incongruency principle would be very confusing in the person memory literature where the "incongruency" effect already occupies a prominent position, and b) our associative recapitulation predicts inhibition effects only in exhaustive and not in heuristic memory tasks, whereas Sloman et al. (1991) do not differentiate between retrieval modes.

Method

Participants and design 84 University of Lisbon students were randomly assigned to the cells of a 3 encoding condition (individuals: John, Peter, Louis, Anthony, personality trait: intelligent, friendly, ecological, artistic, context: vacations, work, holiday, home) x 3 retrieval-cue organization (same, different, no cue) x 2 cue replication (1st block, 3rd block) between subjects factorial.

Procedure Participants were told that they were participating in a study about the impact of different physical contexts on behavior and personality. Afterwards they were exposed to four lists of pre-tested behavioral information organized by different dimensions (target, personality trait or context). For example, when the encoding list was organized by individuals, participants were presented a first list with 8 items from John, followed by 8 items from Peter, 8 items from Louis, and 8 items from Anthony. Each item of information consisted in a behavioral description such as *"John won a chess tournament with 50 participants on his vacations"*, or *"Anthony only uses biodegradable detergents at home"*. Note that all the conditions presented the same behaviors and that there was no relation between individuals, traits and contexts. After reading through the lists and before test participants performed a 15 min. filler task. At test, and immediately before retrieval, they were exposed to a subset of those lists. In the matching condition, that subset followed the organization used at encoding (e.g., individuals; the 8 items presented were the first or the third list presented at encoding; e.g., John or Louis) whereas in another condition it presented an alternative organization (the 8 items presented were the first or the third list presented at encoding in one of the other two encoding conditions; e.g., intelligent or ecologic; vacations or ecologic). A third no-cue condition was also included in which no part-set cues were presented. Finally participants were asked to free recall all the behaviors presented.

Results and discussion

The ANOVA computed on the number of recalled items yielded a cue organization main effect [$F(2,111)=24.27$; $p<.0001$; $\acute{\eta}^2=.18$, $MSe=5.05$] revealing that the 3 part-set cues conditions differed significantly.

Planned contrasts between no cue conditions vs. cued (same and different organization) conditions $t(111)=6.50$; $p<.001$, one-tailed, $MSe=5.05$, $\acute{\eta}^2=.28$, showed that recall performance in the absence of part-set cues ($M=6.48$) is higher then when cues are presented ($M=3.38$), replicating the part-set cuing inhibition effects found in the literature. Further, the planned contrast between the 2 cues conditions was reliable, $t(111)=2.38$, $p<.009$, one-tailed, $MSe=5.05$, $\acute{\eta}^2=.05$. When the retrieval-cues organization differs from the encoding organization recall performance is lower ($M=2.88$) than when encoding and retrieval-cues organizations match ($M=3.97$).

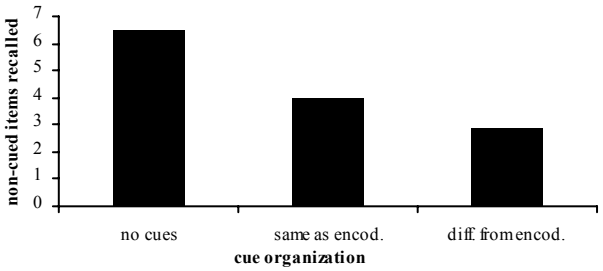

Figure 1: Number of non-cued items as a function of cue organization

Experiment 2

Extending these findings to a *collaborative recall paradigm*, we manipulated the organization of the information given to the participants at encoding. In this paradigm, participants encode the information individually. At test, in the collaborative recall conditions they recall the information collaboratively, whereas in the base-line nominal recall condition they recall the information individually.

We expected that when retrieval cues (provided by other participants' recall outputs) do not recapitulate the associative organization presented, exhaustive recall would be impaired (collaborative inhibition effect will occur). When retrieval cues recapitulate the associative organization presented, exhaustive recall would not be affected (collaborative inhibition effect will be released or lessened).

Method

Participants and design 129 Lisbon University students were randomly assigned to the cells of a 2 group encoding (same, different) x 2 group recall (nominal, collaborative).

Procedure Participants were given the same instructions as in Exp. 1 and presented with the same stimulus materials. In one condition we presented exactly the same list of behavioral information organized in the same way to the 3 collaborative group members (all by target, or all by trait, or all by context). In another condition the same information was presented but with a different organization for the 3 participants (one by target, one by trait, and one by context). After completing a filler task, participants were asked to free recall all the behaviors presented either individually (nominal group recall) or in turn (collaborative group recall), and to write them down.

Results and discussion

The ANOVA computed on the number of recalled items presents a group recall main effect, $F(1,39)=8.08$, $p<.007$, $MSe=13.52$, $\acute{\eta}^2=.17$, indicating that, overall, nominal group recall ($M=20.14$) is higher than collaborative group recall ($M=16.95$).

A planned contrast showed that, in different organization encoding conditions, the collaborative inhibition effect was replicated, such that recall was better at nominal than at collaborative recall conditions (respectively, $M=20.20$ vs.

M=15.27), t(39)= 3.07; p<.002 one-tailed, MSe = 13.52, $\acute{\eta}^2$=.19. This result is consistent with collaborative inhibition effects found in the literature and support our hypothesis regarding the retrieval inhibition effect of collaborative groups in free recall when encoding and retrieval conditions mismatched. In contrast, in same organization encoding conditions, the well known collaborative inhibition effect disappears (M=20.09 vs. M=18.64), t<1. As predicted, when retrieval cues (provided by other participants' recall outputs) recapitulated the associative organization presented, recall was not affected, while mismatching retrieval cues led to collaborative inhibition.

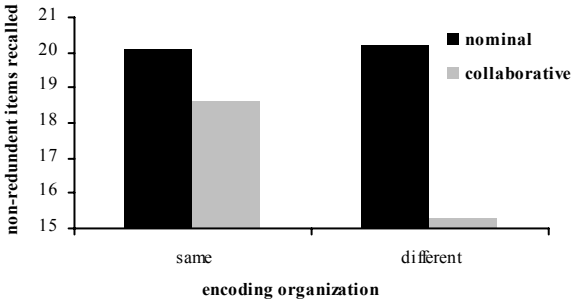

Figure 2: Non-redundant recall as a function of group encoding and recall conditions

Experiment 3

Collaborative cognitive processes do not occur only at recall, the process of forming an impression may be collaborative as well. This experiment examines how the match between encoding and recall contexts can influence recall performance, by presenting a new paradigm of collaborative encoding and recall (adapted from the collaborative recall paradigm; Basden et al., 1997).

According to PAR, whenever retrieval does not recapitulate the associations formed at encoding, recall performance is particularly impaired. Thus, in nominal encoding condition (when encoding is individual) the number of items recalled in collaborative groups will be lower than that of nominal groups (collaborative recall inhibition). Again, collaborative inhibition arises because when recall is performed collaboratively, each participant's attempt to follow their idiosyncratic associative encoding organization interferes with others' attempts to do the same. Thus, collaborative retrieval fails to recapitulate the associations formed at encoding. However in collaborative encoding conditions, participants should form much more similar associative organizations. Each participant's attempt to follow their idiosyncratic associative encoding organization should no longer interfere with others' attempts to do the same. Thus, under collaborative encoding, collaborative recall inhibition should be released or lessened.

Method

Participants and design 123 Lisbon University students were randomly assigned to the cells of a 2 encoding (collaborative, nominal) x 2 recall (collaborative, nominal) x 4 trait-expectancy replications (intelligent, unintelligent, friendly, unfriendly) between subjects factorial design.

Procedure The nominal encoding condition corresponded to the standard impression formation paradigm. Each participant (tested in groups of three) was exposed to a list of pre-tested behavioral information. In collaborative encoding conditions participants (also in groups of three) received the same information but had to make a comment, in turn, about each of the presented behaviors. Each participant had to comment on 1/3 of the behaviors presented, that were recorded by the experimenter. After a filler task, participants were asked to complete recall individually or in collaboration.

Results and discussion

From the ANOVA performed on the number of recalled items two main effects emerged. An effect of recall revealing the collaborative inhibition effect: groups of isolated participants performed better at recall (M=9.87) than collaborative recall groups (M=8.57). F(1,25)=16.77; p<.0004, MSe=2.97, $\acute{\eta}^2$=.40. And an encoding effect showing that participants in collaborative encoding conditions performed better (M=9.78) than those in nominal encoding conditions (M=8.65). F(1,25)=12.74, p<.001, MSe=2.97, $\acute{\eta}^2$=.34. A possible explanation for this last result is the fact that participants were required to comment on 1/3 of the presented items which may have increased their level of attention relative to nominal encoding participants.

Finally, planned comparisons showed that both under nominal [t(25)=3.12; p<.002, one-tailed, MSe=2.97, $\acute{\eta}^2$=.28] and collaborative impression formation contexts [t(25)=2.71; p<.005, one-tailed, MSe=2.97, $\acute{\eta}^2$=.23] recall performance was better for nominal than for collaborative recall groups, with no indication of moderation by the collaborative nature of impression formation. This unexpected result questioned whether collaborative impression formation was indeed performed in collaboration. Since under collaborative impression formation comments were made in turn and always in the same order participants may have focused more on the behaviors they had to comment neglecting the others.

Further analysis of the collaborative impression formation/nominal recall group conditions revealed that participants recalled a much higher proportion of the behaviors they commented on (M=.64) than of those they did not (M =.48), t (26)=4.00, p< .0003, two-tailed, SD=.14, $\acute{\eta}^2$=.38, indicating that collaborative encoding conditions failed to minimize the differences between idiosyncratic associative organizations. A new experiment specifically aimed at changing the collaborative encoding paradigm was required.

Experiment 4

Experiment 4 replicates the previous experiment with some changes in the collaborative encoding procedures. In the collaborative impression formation condition instead of asking participants to comment on the items in turn, we asked them to make their comments in a random order (they

only knew if they had to comment on each item or not after reading it). We assumed that this change would lead participants to form much more similar associative organizations. Thus, under this condition, collaborative retrieval should no longer fail to recapitulate the associations formed by each participant at encoding and the collaborative inhibition should disappear or be reduced.

Method

Participants and design 108 Lisbon University students were randomly assigned to a design similar to Exp. 3.

Procedure The procedure was also similar to Exp. 3. However, instead of asking participants to comment on the items in turn, they should do it in a random order. Moreover, while in Exp. 3 the experimenter recorded their comments, in this experiment, after making or hearing a comment, all the individuals had to write it down.

Results and discussion

The ANOVA computed on the number of recalled items revealed a type of recall main effect $F(1,20)=11.18$, $p<.003$, $MSe=3.22$, $\acute{\eta}^2=.36$, where groups of isolated participants performed better ($M=9.86$) than collaborative recall groups ($M=8.69$) (collaborative inhibition effect). Results also shown a type of encoding main effect $F(1,20)=13.40$, $p<.001$, $MSe=3.22$, $\acute{\eta}^2=.40$. Participants in collaborative encoding conditions performed better ($M=9.90$) than those in nominal encoding conditions ($M=8.63$). Further, the collaborative inhibition effect was moderated by the collaborative nature of impression formation as predicted. Planned comparisons showed that in conditions where impressions are individually formed collaborative inhibition emerged at recall $t(20)=3.55$; $p<.001$, $MSe=3.22$, $\acute{\eta}^2=.39$, whereas when impressions were formed collaboratively, it did not, $t(20)=1.28$; $p<.107$, $MSe=3.22$, $\acute{\eta}^2=.08$.

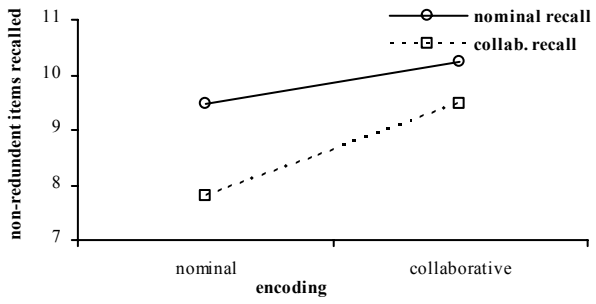

Figure 3: Non-redundant recall as a function of encoding and recall conditions

Further analyses showed that the problem we encountered in Exp. 3 was reduced in this experiment. We no longer found significant differences, per participant, between the proportion of commented ($M=.58$) and non-commented ($M=.51$) recalled items, $t(23)=1.65$; $p<.112$, two-tailed, $SD=.14$, $\acute{\eta}^2=.11$, suggesting that participants were processing the items they had to comment on and the items commented on by the other 2 group members in more similar ways.

General Discussion

In four experiments, we manipulated the match of the organization present in the studied stimuli and in the retrieval context, using a part-set cue paradigm (Exp. 1), a collaborative recall paradigm (Exp. 2) and a new encoding and recall paradigm (Exp. 3 and 4).

The provision of a subset of previously presented items at retrieval decreased recall of non-cued items, particularly when the part-set cues provided mismatched the organization of materials presented at encoding. A parallel result was obtained in conditions of collaborative recall. The number of items recalled in collaborative-recall groups was lower than that of nominal-recall groups (collaborative recall inhibition) when encoding and recall conditions mismatched. However when there was a match between encoding and retrieval processing the collaborative inhibition effect diminished. Finally, introducing a new collaborative encoding and recall paradigm, we found that, although in a non-collaborative impression formation condition the collaborative inhibition effect was replicated, when the impression formation process was performed collaboratively, the difference between nominal and collaborative recall conditions almost disappeared.

On the whole, our experiments provide a differential test to the different explanations of part-set cuing and collaborative inhibition effects, aiming at contributing to the ongoing debate in memory research. As we argued before, the present extension of part-set cuing effects to a context that entails high levels of integrative processing cannot be accounted by an occlusion/inhibition explanation (Anderson & McCulloch, 1999). Also the strategy disruption account does not seem to fit with the incidental nature of memory involved in our impression formation tasks, where the engagement on deliberate and conscious strategies at learning to form a recall plan would not be necessary to perform the suggested tasks.

Our full set of results seems to be more compatible with a modified recall disruption hypothesis, our associative re-capitulation hypothesis, such that the inhibition effects are explained by the mismatch between recall and encoding frameworks. In fact, we argue that this same theoretical principle accounts for the result patterns across the four experiments. The PAR simply states that when retrieval search fails to follow the inter-item associations formed during encoding, performance will be impaired. Part-set cuing and collaborative encoding and recall effects represent instances where the retrieval context can potentially provide cues organized in a way that mismatches the idiosyncratic associations formed at encoding. The mismatch between the organization of the cues provided at test and the organization used at learning leads to recall performance impairments (part-set cuing and collaborative inhibition effects). However, when the organization of the cues provided at test matched the organization of the stimuli used at study, these effects disappeared. Note that, when part-set cues recapitulate the initial encoding organization, and when collaborative recall groups share the same encoding

organization, participants can follow the inter-item associations formed at encoding. This similar associative organization between encoding and retrieval reduces recall impairment.

Traditionally, cognitive mechanisms have been characterized as processes taking place within the individual mind. However most cognitive activities take place in social settings and many cognitive tasks are undertaken in a collaborative manner. Memory is often such a cognitive task. Our results stress the importance of studying person memory and the role of collaborative encoding and retrieval paradigms within the framework of memory processes as cognitively distributed rather than simply individual phenomena.

Our results replicate the part-set cuing and the collaborative recall inhibition effect in person memory contexts. It is our contention that these findings are important because situations analogous to part-set cuing or collaborative encoding and retrieval paradigms are likely to occur frequently in the social cognitive world. The retrieval of person or group information, even when it pertains to specific facts, may often be truncated, thus inhibiting future retrieval attempts of non-retrieved information. Consequently, we argue that retrieval inhibition paradigms, far from being laboratory whims, are crucial to understanding social memory. In fact, in social contexts, it seems likely that only under exceptional circumstances recall and encoding context match or the opportunity to recapitulate the associations formed at encoding arise. Indeed, the case of social interference or social disruption of these processes may well be the rule. Thus, we think that the generalization of the findings derived from the study of isolated individuals under optimal retrieval conditions must be complemented with the consideration of retrieval interference in social as well as in non-social contexts.

Acknowledgments

Preparation of this paper was supported in part by the Grant POCTI/PSI/47252/2002 from the FCT (Portugal) to the first two authors and the last author.

References

Anderson, M. C., & Bjork, R. (1994). Mechanisms of inhibition in long-term memory: a new taxonomy. In D. Dagenbach, & T.H. Carr (Eds.), *Inhibitory processes in attention, memory and language.* San Diego, CA, USA: Academic Press, Inc.

Anderson, M. C., & McCulloch, K. C. (1999). Integration as a general boundary condition on retrieval-induced forgetting. *Journal of Experimental Psychology: Learning, Memory and Cognition, 25*, 608-629

Anderson, M. C., & Spellman, B. A. (1995). On the status of inhibitory mechanisms in cognition: Memory retrieval as a model case. *Psychological Review, 102,* 68-100.

Asch, S. E. (1946). Forming impressions of personality. *Journal of Abnormal and Social Psychology, 41*, 258-290.

Basden, D. R., & Basden, B. H. (1995). Some tests of the strategy disruption interpretation of part-set cuing inhibition. *Journal of Experimental Psychology: Learning, Memory and Cognition, 21*, 1656-1669.

Basden, B. H., Basden, D. R., Bryner, S., & Thomas, R. L. (1997). A comparison of group and individual remembering: Does group participation disrupt retrieval? *Journal of Experimental Psychology: Learning, Memory and Cognition, 23*, 1176-1189.

Dunn, E. W., & Spellman, B. A. (2003). Forgetting by remembering: Stereotype inhibition through rehearsal of alternative aspects of identity. *Journal of Experimental Social Psychology, 39*, 420-433.

Garcia-Marques, L., Hamilton, D. L. & Maddox, K. (2002). Exhaustive and heuristic retrieval processes in person cognition: Further tests of the TRAP model. *Journal of Personality and Social Psychology, 82,* 193-207.

Garrido, M., & Garcia-Marques, L. (2003). Em busca da distinção perdida: Acessibilidade versus disponibilidade mnésicas em cognição social [Searching for the lost distinction: memory accessibility versus memory availability in social cognition]. *Análise Psicológica, nº 3,* série XXI, 323-339.

Morris, C. D., Bransford, J. D., & Franks, J. J. (1977). Levels of processing versus transfer appropriate processing. *Journal of Verbal Learning and Verbal Behavior, 16*, 519-533.

Nickerson, R. S. (1984). Retrieval inhibition from part-set cuing: A persisting enigma in memory research. *Memory & Cognition, 12*, 531-552.

Peynircioğlu, Z. (1989). Part-set cuing effect with word-fragment cuing: Evidence against the strategy disruption and increased-list-length explanations. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 15*, 147-152.

Peynircioğlu, Z. (1995). Part-set cuing in incidental and implicit memory. *American Journal of Psychology, 108*, 1995, 1-11.

Rundus, D. (1973). Negative effects of using list items as recall cues. *Journal of Verbal Learning and Verbal Behavior, 12,* 43-50.

Sloman, S. A., Bower, G. H., & Rohrer, D. (1991). Congruency effects in part-list cuing inhibition. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 17*, 974-982.

Slamecka, N. J. (1968). An examination of trace storage in free recall. *Journal of Experimental Psychology, 76*, 504-513.

Tulving, E., & Thompson, D. M. (1973). Encoding specificity and retrieval processes in episodic memory. *Psychological Review, 80*, 352-373.

Weldon, M. S., & Bellinger, K. D. (1997). Collective memory: Collaborative and individual processes in remembering. *Journal of Experimental Psychology: Learning, Memory and Cognition, 23*, 1160-1175.